

Y. Matsushima et al.  
09/045,385  
RESPONSE TO OFFICE ACTION  
Page 4

Claims 8 and 16 were amended to address the Examiner's rejections and to more distinctly claim applicant's invention. The amendments to the claims are supported by the originally filed disclosure.

The specification including the TITLE was objected to and correction required. The specification including the title was amended to address the Examiner's objections. The amendment to the specification does not introduce new matter because they either are editorial in nature or are supported by the originally filed disclosure.

#### 35 U.S.C. 102 REJECTIONS

The Examiner rejected claims 1 through 9 under 35 USC 102(e) as being anticipated by Matsuyama et al. (US Pat. 5,831,701; "reference"). The Applicants respectfully traverse as discussed below. Because claim 8 was amended in the instant amendment, the following discussion refers to the language of the amended claim. However, only those amended features specifically relied upon to distinguish the claimed invention from the cited prior art shall be considered as being made to overcome the cited reference.

Both the application and the Matsuyama reference relate to liquid crystal display devices. In particular, the Examiner states on page 2 of the Office action that the Matsuyama reference discloses a liquid crystal display device that includes substrates **1** and **1'**, TFT switching elements **8**, and RGB color filters **18** (see FIGS. 1A and 2A of

Y. Matsushima et al.  
09/045,385  
RESPONSE TO OFFICE ACTION  
Page 5

Matsuyama et al.). However, the Applicants respectfully point out that the substrate **1** is a TFT substrate, and the substrate **1'** is a color-filter substrate (see column 8, lines 28 through 37, of Matsuyama et al.). The Applicants therefore contend that the Matsuyama reference does not disclose a liquid crystal display device including a first substrate, a second substrate, and a liquid crystal layer interposed therebetween, wherein the first substrate includes a plurality of switching elements, a plurality of picture element electrodes connected to the plurality of switching elements, and a plurality of color filters which are arranged so as to correspond to the plurality of picture element electrodes on an area of the first substrate corresponding to a display region of the liquid crystal display device, as recited in claim 1.

More specifically, the Matsuyama reference discloses the substrate **1**, which includes the TFT switching elements **8**; and, the substrate **1'**, which includes the RGB color filters **18**. It is therefore clear that the Matsuyama reference teaches that the TFT switching elements **8** and the RGB color filters **18** are formed on the *different* substrates **1** and **1'**, respectively. In contrast, claim 1 recites that the plurality of switching elements and the plurality of color filters are formed on the *same* first substrate.

It is well settled that in order to have § 102 anticipation, a single reference must teach (*i.e., identically describe*) each and every element of the rejected claim, or else the reference falls under § 103. Because the Matsuyama reference does not teach forming the plurality of switching elements and the plurality of color filters on the *same* first

Y. Matsushima et al.  
09/045,385  
RESPONSE TO OFFICE ACTION  
Page 6

substrate, claim 1 distinguishes over the Matsuyama reference and the rejection under § 102 is improper.

An important advantage is derived from forming the plurality of switching elements and the plurality of color filters on the *same* substrate. In particular, the TFT substrate and a counter substrate including the color filters can be adhered to each other without requiring high accuracy, and thus a large scale apparatus is unnecessary, thereby simplifying the step of adhering the substrates (see page 19, line 21, to page 20, line 2, of the application).

The Examiner also states that the liquid crystal display device disclosed by the Matsuyama reference includes a black mask light shielding layer **17** around the periphery of the display region and shielding the switching elements (see FIG. 1A of Matsuyama et al.). However, the Applicants respectfully point out that the Matsuyama reference teaches that the black mask **17** is formed *between* the color filters R, G, and B included in the substrate **1'** (see FIG. 3 of Matsuyama et al.). The Applicants therefore contend that the Matsuyama reference does not disclose a liquid crystal display device including a first substrate with a light shielding frame layer *around a periphery of a display region*, as recited in claim 1.

More specifically, the Matsuyama reference discloses that the black mask **17** is *for demarcating, i.e., for marking the boundaries of, the color filters R, G, and B* (see column 9, lines 21 through 23, of Matsuyama et al.). In contrast, claim 1 recites that

Y. Matsushima et al.  
09/045,385  
RESPONSE TO OFFICE ACTION  
Page 7

the light shielding frame layer is formed around a periphery of the display region, which refers to an area of the substrate from where a viewer can actually see a displayed image (see page 2, lines 9 through 12, of the application). Accordingly, the light shielding frame layer is *for shielding unnecessary light incident to the periphery of the display region* (see page 3, lines 14 through 18, of the application).

Further, the Matsuyama reference discloses that the black mask **17** is formed on the substrate **1'**, *i.e., the color filter substrate* (see column 8, line 28 through 32, of Matsuyama et al.). In contrast, claim 1 recites that the light shielding frame layer is included on the same substrate as the plurality of switching elements, *i.e., the TFT substrate*. Not only are the black mask **17** and the light shielding frame layer of claim 1 formed on *different* substrates, but they also have *different* structures and serve *different* purposes. Clearly, the black mask **17** disclosed by the Matsuyama reference is *not* the light shielding frame layer of claim 1.

It is respectfully submitted that for the foregoing reasons, claim 1 is patentable over the cited reference and satisfies the requirements of 35 U.S.C. 102(e). As such, claim 1, including claims 2 through 7 dependent therefrom, are allowable.

Amended claim 8 also recites the first substrate including the plurality of switching elements and the light shielding frame layer around the periphery of the display region. As explained above, the black mask **17** disclosed by the Matsuyama reference is clearly not the light shielding frame layer disclosed by the application.

Y. Matsushima et al.  
09/045,385  
RESPONSE TO OFFICE ACTION  
Page 8

Accordingly, the Applicants contend that amended claim 8 recites novel features, *e.g.*, the light shielding frame layer, that distinguish it over the Matsuyama reference.

Further, amended claim 8 recites that the first substrate includes a driving circuit for driving the switching elements, and that *the light shielding frame layer around the periphery of the display region is formed over the driving circuit*. This is mentioned in the application on page 27, lines 3 through 7, of the application. This limitation is also included in original claim 7.

As mentioned above, the black mask **17** is formed on the substrate **1'**, *i.e.*, the color filter substrate; the black mask **17** is *not* formed on the substrate **1**, *i.e.*, the TFT substrate. In contrast, amended claim 8 recites that the plurality of switching elements, the driving circuit for driving the switching elements, and the light shielding frame layer formed over the driving circuit are all formed on the *same* first substrate, *i.e.* *the TFT substrate*. It is therefore clear that the black mask **17** is *not* the light shielding frame layer of amended claim 8. This is because the black mask **17** is not formed on the TFT substrate and therefore cannot be formed over the driving circuit for driving the switching elements.

It is respectfully submitted that for the foregoing reasons, amended claim 8 is patentable over the cited reference and satisfies the requirements of 35 U.S.C. 102(e). As such, amended claim 8, including claim 9 dependent therefrom, are allowable.

Y. Matsushima et al.  
09/045,385  
RESPONSE TO OFFICE ACTION  
Page 9

35 U.S.C. 103 REJECTIONS

Claims 10 through 17 stand rejected under 35 U.S.C. 103 as being unpatentable over Matsuyama et al. in view of what is conventional in the art. The Applicants respectfully traverse as discussed below. Because claim 16 was amended in the instant amendment, the following discussion refers to the language of the amended claim. However, only those amended features specifically relied upon to distinguish the claimed invention from the cited prior art shall be considered as being made to overcome the cited reference.

The Examiner states on page 3 of the Office action that the method steps recited by the Applicants are used conventionally in the art to form all liquid crystal displays. However, the Applicants contend that forming a plurality of switching elements, a plurality of color filters, and a light shielding frame layer on the *same* first substrate, as recited in claim 10, is *not* a conventional process step in this art. As explained above, the Matsuyama reference discloses the conventional process step of forming the TFT switching elements and the RGB color filters on *different* substrates.

Accordingly, even if the Matsuyama reference were modified as suggested, the resulting modification would not meet claim 10.

It is respectfully submitted that for the foregoing reasons, claim 10 is patentable over the cited references and satisfies the requirements of 35 U.S.C. 103. As such, claim 10, including claims 11 through 15 dependent therefrom, are allowable.

The Applicants also contend that forming a plurality of switching elements, a driving circuit for driving the switching elements, and a light shielding frame layer formed over the driving circuit on the *same* first substrate, as recited in amended claim 16, is *not* a conventional process step in this art. As explained above, the black mask 17 disclosed by the Matsuyama reference is *not* the light shielding frame layer disclosed by the application. In fact, the Matsuyama reference discloses that the black mask 17 and the TFT switching elements 8 are formed on *different* substrates. The black mask 17 therefore cannot be formed over a driving circuit for driving the TFT switching elements 8. Clearly, the process steps for producing a liquid crystal display device, as recited in amended claim 16, are *not* the conventional process steps disclosed by the Matsuyama reference.

Accordingly, even if the Matsuyama reference were modified as suggested, the resulting modification would not meet amended claim 16.

It is respectfully submitted that for the foregoing reasons, amended claim 16 is patentable over the cited references and satisfies the requirements of 35 U.S.C. 103. As such, amended claim 16, including claim 17 dependent therefrom, are allowable.

#### SPECIFICATION OBJECTIONS

The Examiner objected to the specification of the subject application, including the TITLE and requested correction thereof. The following addresses the specific

COPY

Y. Matsushima et al.  
09/045,385  
RESPONSE TO OFFICE ACTION  
Page 11

objections of the Examiner.

TITLE

The Examiner objected to the TITLE as not being descriptive of the invention being claimed and requested correction. The TITLE has been amended in the instant amendment to address the Examiner's objections. As such, the TITLE, as amended, is considered acceptable.

It is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

The Applicants believe that additional fees are not required for consideration of the within Response. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

DIKE, BRONSTEIN, ROBERTS  
& CUSHMAN

Date: April 20, 1999

By: Richard E. Gamache  
Richard E. Gamache  
(Reg. No. 39,196)  
130 Water Street  
Boston, MA 02109  
(617) 523-3400